ResMed

VPAP™ ST / VPAP™ S

POSITIVE AIRWAY PRESSURE DEVICE

H5i™

HEATED HUMIDIFIER

Clinical Guide

English



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Welcome

Thank you for choosing the VPAP ST or VPAP S or H5i.
Before operating these devices, please read the entire Clinical and Information Guides.

VPAP ST indications for use

The S9 VPAP ST is intended to provide non-invasive ventilation for patients weighing more than 13 kg with respiratory insufficiency or obstructive sleep apnoea (OSA). The S9 VPAP ST is intended for home and hospital use.

VPAP S indications for use

The S9 VPAP S is intended to provide non-invasive ventilation for patients weighing more than 13 kg with respiratory insufficiency or obstructive sleep apnoea (OSA). The S9 VPAP S is intended for home and hospital use.

VPAP ST and VPAP S contraindications

Positive airway pressure therapy may be contraindicated in some patients with the following pre-existing conditions:

- severe bullous lung disease
- pneumothorax or pneumomediastinum
- pathologically low blood pressure, particularly if associated with intravascular volume depletion
- dehydration
- cerebrospinal fluid leak, recent cranial surgery, or trauma.

VPAP ST and VPAP S adverse effects

Patients should report unusual chest pain, severe headache, or increased breathlessness to their prescribing physician. An acute upper respiratory tract infection may require temporary discontinuation of treatment.

The following side effects may arise during the course of therapy with these devices:

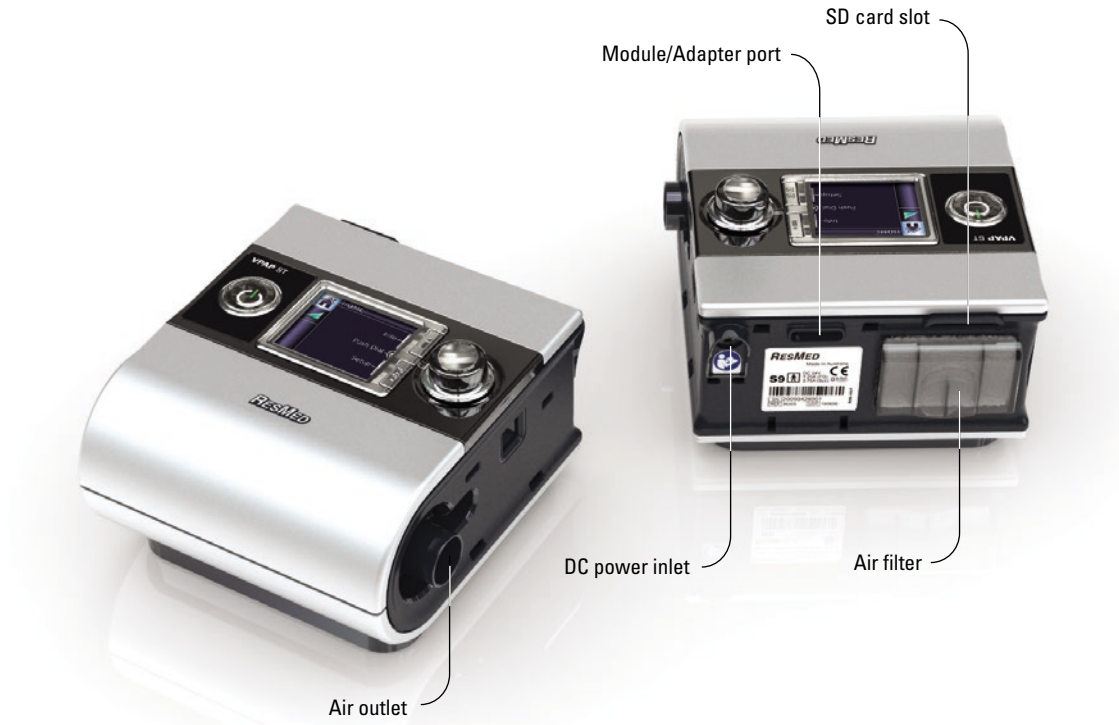
- drying of the nose, mouth, or throat
- nosebleed
- bloating
- ear or sinus discomfort
- eye irritation
- skin rashes.

H5i indications for use

The H5i is indicated for the humidification of the air delivered from a CPAP or bilevel device. The H5i is for use only as recommended by a physician. The H5i is intended for single patient re-use in the home environment and re-use in a hospital/institutional environment.

H5i contraindications

The H5i is contraindicated for use with patients whose upper (supraglottic) airway has been bypassed.



VPAP ST and VPAP S at a glance

The VPAP system comprises the following elements:

- VPAP device
- Air tubing
- 90W power supply unit
- S9 travel bag
- SD card
- S9 SD card protective folder.

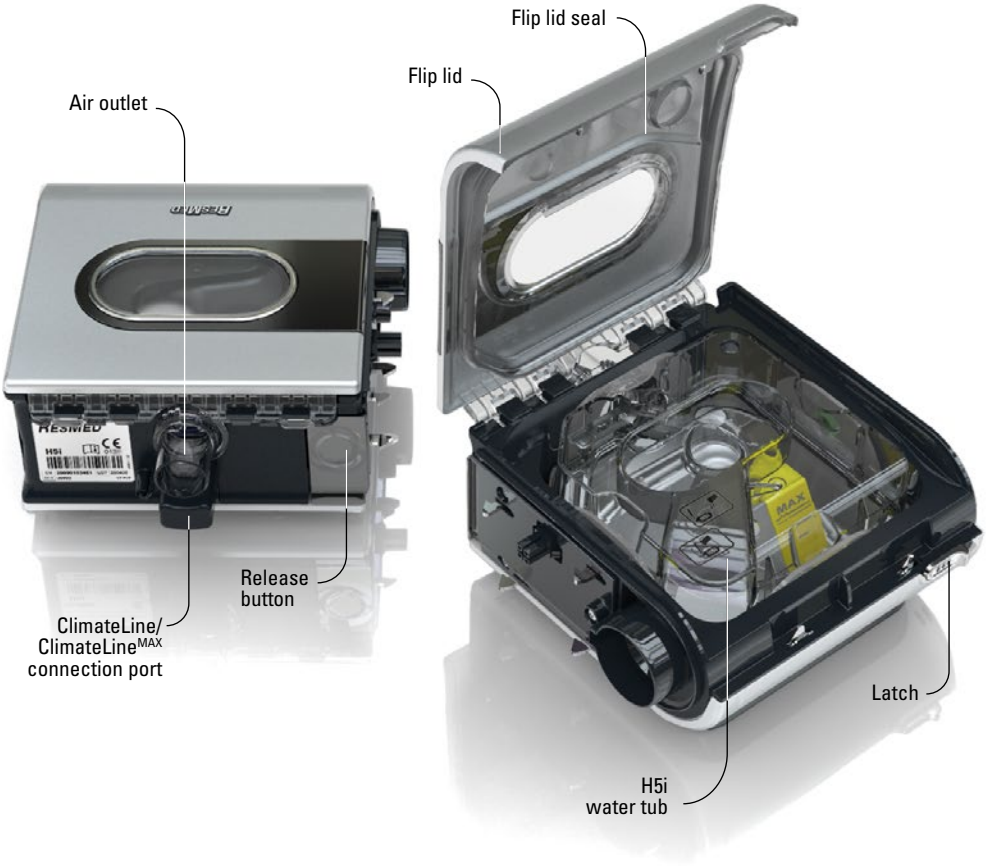
Optional components include:

- H5i heated humidifier
- Standard air tubing
- SlimLine™ air tubing
- 3m air tubing
- ClimateLine™ heated air tubing
- ClimateLine^{MAX} ™ heated air tubing
- 30W power supply unit (does not support H5i)
- Power Station II battery pack
- DC/DC Converter 24V/90W
- S9 Oximeter Adapter.

Travelling with the VPAP

When the patient travels with the VPAP only:

- Advise the patient to pack the SlimLine or Standard air tubing as the ClimateLine or ClimateLine^{MAX} heated air tubing is not designed to connect directly to the VPAP device.
- Advise the patient to purchase and travel with the approved power cord for the region where they will be using the VPAP device.
- ResMed confirms that the VPAP ST and VPAP S meets the Federal Aviation Administration (FAA) requirements (RTCA/DO-160, section 21, category M) for all phases of air travel.



H5i at a glance

The H5i system comprises the following elements:

- H5i heated humidifier
- H5i cleanable water tub
- ClimateLine heated air tubing (if sold as a Climate Control Kit).

Optional components include:

- ClimateLine^MAX heated air tubing
- H5i standard water tub.

Travelling with the H5i

When moving or travelling with your H5i:

- Ensure that the water tub is empty.
- Disconnect the H5i from the VPAP by pressing the release button.

Operating information

The VPAP device uses internal pressure and flow sensors in the air path to respond reliably to patient flow rates even in the presence of most normal leaks in the patient circuit.

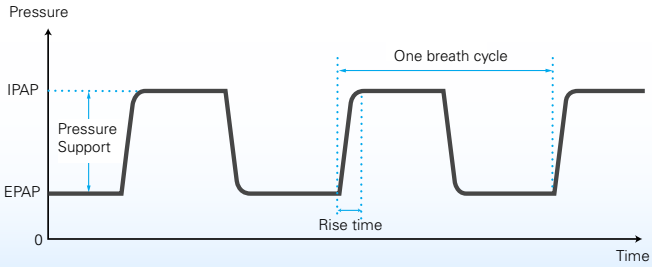
Bilevel pressures

The VPAP device assists spontaneous breathing by cycling between two pressures in response to the patient flow or a preset fixed time.

The inspiratory positive airway pressure (IPAP, or the sum of EPAP and the pressure support level) assists inspiration.

The lower expiratory positive airway pressure (EPAP) eliminates exhaled air through the mask exhaust vent. This facilitates exhalation comfort while providing a splint to maintain an open upper airway.

The difference of the two pressures—pressure support (PS) level—contributes to improved patient ventilation.



Modes of operation

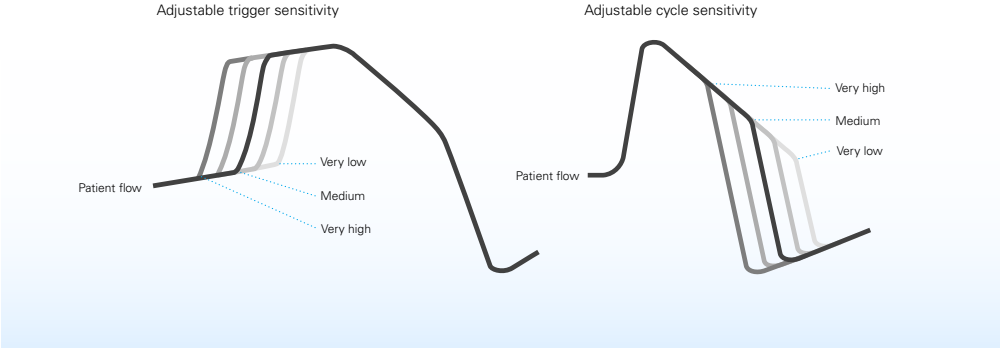
The following table describes the operating modes available on the VPAP ST or VPAP S.

Mode	VPAP ST	VPAP S
CPAP mode A fixed pressure is delivered.	✓	✓
S (Spontaneous) mode You may set two treatment pressures—one for inspiration (IPAP) and one for expiration (EPAP). The VPAP device senses when the patient is inhaling and exhaling and supplies the appropriate pressures accordingly. The difference between IPAP and EPAP levels helps determine the tidal volume.	✓	✓
ST (Spontaneous/Timed) mode The VPAP device augments any breath initiated by the patient, but will also supply additional breaths should the patient breath rate fall below the clinician's set "backup" breath rate.	✓	
T (Timed) mode The fixed breath rate and the fixed inspiration/expiration time set by the clinician is supplied regardless of patient effort.	✓	

Triggering and cycling

(S and ST modes) Under normal conditions, the VPAP device triggers (initiates IPAP) and cycles (terminates IPAP and changes to EPAP) as it senses the change in patient flow. Patient breath detection is enhanced by the VPAP device's automatic leak management feature—Vsync.

In addition, the VPAP device has adjustable trigger/cycle sensitivity to optimise the sensing level according to patient conditions.



Leak Management – Vsync

Vsync monitors and compensates for leak by continuously and automatically adjusting the baseline flow. This enables reliable triggering and cycling while maintaining the set pressures.

Rise time adjustment

(S, ST and T modes) Rise time sets the time taken for the VPAP device to reach IPAP. The greater the rise time value, the longer it takes for pressure to increase from EPAP to IPAP.

Patients with a high ventilatory demand may prefer a shorter rise time, while patients who are slow breathers may prefer a longer rise time.

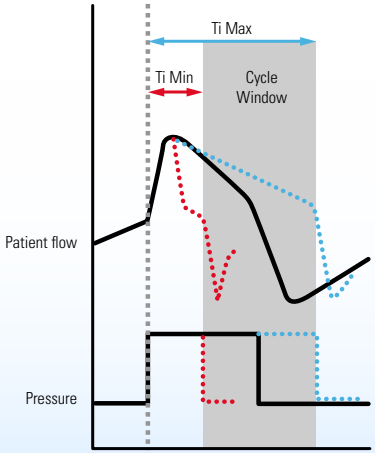
Note: *A prolonged rise time inhibits fast pressurisation, therefore, rise time should not be set longer than Ti Max or the patient's normal inspiratory time.*

TiControl™ – Inspiratory Time Control

(S and ST modes) Unique to ResMed CPAP and bilevel devices, TiControl allows the clinician to set minimum and maximum limits on the time the device spends in IPAP. The minimum and maximum time limits are set at either side of the patient's ideal spontaneous inspiratory time, providing a 'window of opportunity' for the patient to spontaneously cycle to EPAP.

The minimum time limit is set via the Ti Min parameter and the maximum time limit is set via the Ti Max parameter.

TiControl's Ti Max and Ti Min parameters play a significant role in maximising synchronisation by effectively intervening to limit or prolong the inspiratory time when required. This ensures synchronisation even in the presence of significant mouth and/or mask leak.



The following table is a guide to selecting the Ti Max and Ti Min values that best correspond to the patient's respiratory rate and inspiration and expiration ratio, depending on the respiratory conditions.

Notes:

- *I:E = 1:1 – Ti Min prevents the premature cycling to EPAP for patients whose inspiratory effort is extremely weak.*
- *I:E = 1:3 – Ti Max limits the inspiration time for patients who require a longer* expiration time.

Patient breath (BPM)	Ttot = 60/BPM (sec)	I:E = 1:2 (Reference)	Sufficient inhalation time I:E = 1:1		Secure exhalation time I:E = 1:3
			Ti Min	Ti Max	Ti Max
10	6	2	1.0	2.0	1.5
15	4	1.3	1.0	2.0	1.3
20	3	1.0	0.8	1.5	1.0
25	2.4	0.8	0.7	1.2	0.8
30	2	0.7	0.6	1.0	0.7
35	1.7	0.6	0.5	0.8	0.7
40	1.5	0.5	0.5	0.7	0.7

VPAP ST and VPAP S features

Climate Control

VPAP devices, when used in conjunction with the H5i and ClimateLine or ClimateLine^{MAX} heated air tubing, offer a feature called Climate Control.

Climate Control enables the automatic delivery of a constant value of absolute humidity to the patient's upper airway while protecting against rainout and allowing patients to select the air temperature that offers the most comfort for them.

Rainout protection

Rainout refers to the water or condensation that collects in the patient's tubing or mask. Rainout is a common side effect of using a humidifier due to the humidified air cooling as it travels down the tubing and into the mask. Rainout occurs when relative humidity, which is a measure of the air's capacity to hold water vapour, exceeds 100%.

Climate Control protects the patient from rainout by maintaining a target relative humidity of 80% as well as maintaining the temperature of the air delivered to the patient without compromising the amount of absolute humidity delivered.

Automatic constant humidity delivery

For each temperature setting, the Climate Control system delivers a constant amount of water vapour, or absolute humidity, to the patient's upper airway. The following table shows the target absolute humidity value that will be delivered to the mask for a selection of temperature settings.

Temperature delivered to the mask	Target absolute humidity at the mask, Body Temperature Pressure Saturated (BTPS)
16°C	10 mg/L
20°C	12 mg/L
24°C	16 mg/L
27°C	19 mg/L
30°C	22 mg/L

Automatic constant temperature delivery

The temperature sensor located at the mask end of the ClimateLine or ClimateLine^{MAX} heated air tube enables the system to automatically control the temperature of the air delivered to the patient. This ensures the temperature of the air delivered to the patient does not fall below the set minimum temperature, therefore maximising breathing comfort for the patient.

Automatic adjustment

The H5i and ClimateLine or ClimateLine^{MAX} heated tubing are controlled by the Climate Control algorithm to deliver constant humidity and temperature outputs. The system adjusts automatically to changes in:

- ambient room temperature and humidity values
- flow due to pressure changes
- flow due to mask or mouth leak.

S9 Essentials

S9 Essentials is designed to make device interaction and menu navigation easier for patients. If enabled, S9 Essentials disables the Info and Setup functionality so that patients can simply start and stop therapy and adjust ramp, humidification and Climate Control. S9 Essentials can be enabled via Clinical Setup > Options > Access.

Sleep quality

Designed to promote compliance, the Sleep Quality indicator allows the patient to actively engage in their own therapy by identifying leak, usage and AHI information. This information can be set to:

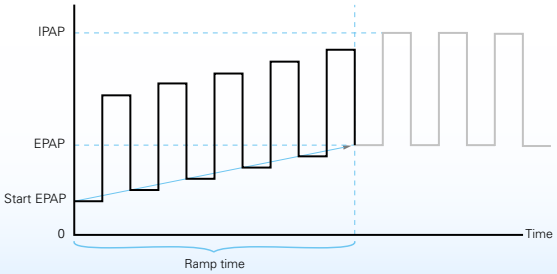
- Usage—where only usage hours are displayed
- On—where usage, mask fit and AHI information are displayed.

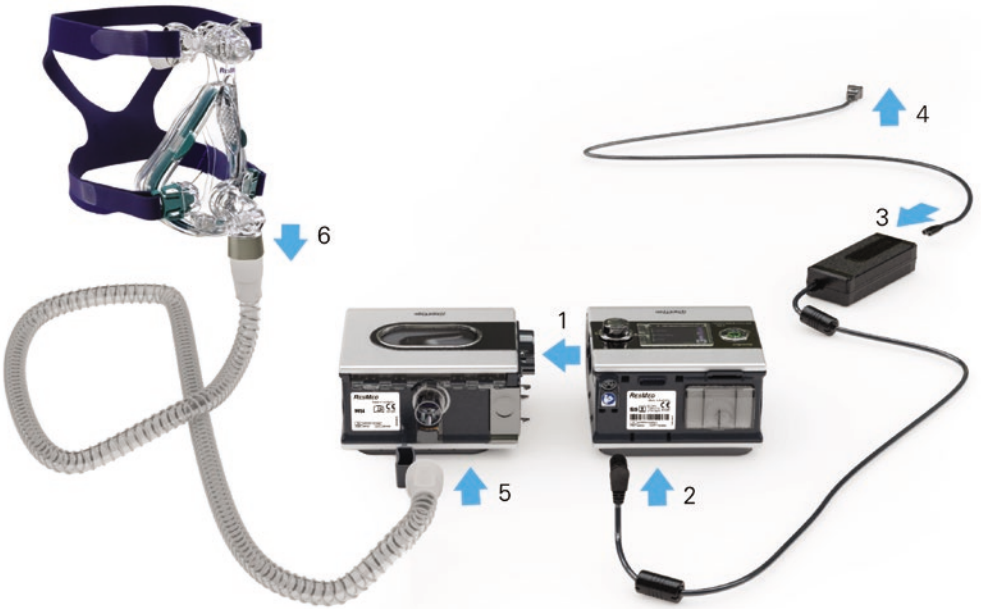
Ramp

Ramp is designed to make the beginning of treatment more comfortable.

In CPAP mode during ramp time, the pressure increases from a low pressure to the prescribed treatment pressure.

In S, ST and T modes, ramp time defines the period during which the pressure gradually increases from a low start pressure (referred to as Start EPAP) to the prescribed treatment pressure (EPAP).





Setup

1. Align your H5i with your VPAP device and push them together until they click into place.
2. Connect the DC plug of the power supply unit to the rear of the VPAP device.
3. Connect the power cord to the power supply unit.
4. Plug the other end of the power cord into the power outlet.
5. Connect one end of the air tubing firmly onto the air outlet.
6. Connect the assembled mask system to the free end of air tubing.

Notes:

- *Always ensure that your VPAP device and H5i are placed on a stable, level surface for proper operation.*
- *Place the power supply unit away from the H5i to allow for adequate ventilation.*

Mask and tubing setup

- For more information on assembling the mask see the mask user guide.
- If your patient is using a full face mask ensure that the "Full Face" setting is selected. If your patient is using a nasal pillows mask ensure that the "Pillows" setting is selected. If your patient is using a nasal mask ensure that the "Nasal" setting is selected with the exception of the Ultra Mirage mask which should use the "Nasal Ultra" setting. If your patient is using a paediatric mask ensure that the "Pediatric" setting is selected.
- For a complete list of recommended masks and their settings go to www.resmed.com on the **Products** page under **Service & Support**. If you do not have internet access, please contact your ResMed representative.
- The VPAP device is compatible with the following tubing:

Tube	Specifications	Settings
ClimateLine Length: Inner diameter:	Heated 2 m 15 mm	Automatically detected
ClimateLine^{MAX} Length: Inner diameter:	Heated 1.9 m 19 mm	Automatically detected
SlimLine Length: Inner diameter:	 1.8 m 15 mm	If using the SlimLine, Standard or 3 m tubing, adjust the tube setting in the Patient Setup or Clinical Setup menus.
Standard Length: Inner diameter:	 2 m 19 mm	
3 m Length: Inner diameter:	 3 m 19 mm	

Notes:

- *When using the SlimLine or ClimateLine above 20 cm H^2O, the device optimum performance may not be reached if used with an antibacterial filter. The device performance must be checked prior to prescribing the SlimLine for use with an antibacterial filter.*
- *The ClimateLine/ClimateLine^{MAX} are designed only for use with the H5i.*

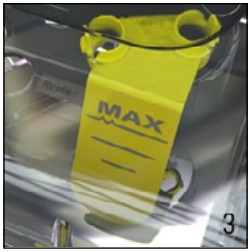
Filling the water tub

1. Slide the latch and lift open the flip lid.
2. Remove the water tub.
3. Fill the water tub (through the centre hole) with water up to the maximum water level mark (380 mL).
4. Return the water tub to the H5i.
5. Close the flip lid ensuring that it clicks into place.













VPAP basics



LCD screen*
Displays the menus, treatment screens and reminders.

Start/Stop button
Starts or stops treatment.

Info menu button**
Allows you to view your sleep statistics or exit from the menu.

Setup menu button**
Allows you to make changes to settings or exit from the menu.

Push dial
Turning the dial allows you to scroll through the menu and change settings. Pushing the dial allows you to enter into a menu and confirm your choice.

Key:

- Home
- Humidity level
- Ramp
- Heated tube
- Climate Control
- Start/Stop
  Power Save mode (hold for 3 sec)
- Push Dial
- Setup menu
- Info menu
- Advanced Info menu (hold for 3 sec)
- Clinical Setup menu (hold for 3 sec)

* Backlight—When treatment is being delivered, the backlight (including the Start/Stop button) automatically turns off after 30 seconds, otherwise it turns off after 3 minutes.

** The Info and Setup menus are disabled if S9 Essentials is enabled.

Navigating the menus

In general, to navigate the menus:



1. Turn until the parameter you require is displayed in blue.



2. Press . The selection is highlighted in orange.



3. Turn until you see the setting that you require.



4. Press to confirm your choice. The screen returns to blue.

About the menus

There are three menus that are designed to help you choose your options. These are:

1. **Home** menu—for day to day adjustments.
2. **Info** menu—provides sleep quality information.
3. **Setup** menu—where settings can be adjusted.

Home menu

The Home menu shows you and your patient what features are currently activated, and the accessories that are connected to the device.



Ramp—displayed when the Max Ramp function is activated in the Clinical Setup menu.

Humidity Level—displayed when the H5i is connected.

Climate Control—displayed when both the H5i and the ClimateLine/ClimateLine^{MAX} heated air tube are connected and when Climate Control is activated in the Clinical Setup menu.

Humidity Level and **Heated Tube**—displayed when both the H5i and the ClimateLine/ClimateLine^{MAX} heated air tube are connected and when Climate Control is set to Manual in the Clinical Setup menu.

Changing settings via the Home menu

From the Home menu, you can adjust or check the following features:



Ramp

Designed to make the beginning of treatment more comfortable for the patient, ramp time is the period during which the pressure increases from an initial pressure to the prescribed treatment pressure or minimum treatment pressure.



Humidity level

The patient can adjust their humidity level at any time to find the setting that is most comfortable for them.



Climate Control

When the ClimateLine/ClimateLine^{MAX} heated air tubing is connected and Climate Control is enabled, the patient can adjust the air temperature to find the setting that is most comfortable for them.

When set to Auto, Climate Control prevents rainout by maintaining 80% relative humidity in the delivered air. If Climate Control is set to Manual, Humidity Level and Heated Tube temperature can be set independently.





Mask-fit

Mask-fit is designed to help patients fit the mask properly.

The mask-fit feature delivers treatment pressure for a three-minute period, prior to starting treatment. During this time, the mask can be adjusted to minimise leaks.

To use mask-fit:

1. Fit the mask as described in the mask user guide.
2. Press  for at least three seconds.
   One of the MASK FIT screens shown is displayed (as shown on the left).
3. If necessary, adjust the mask, mask cushion and headgear until there is a secure and comfortable fit. After three minutes, the pressure reverts to the set pressure and treatment will begin. You can end mask-fit at any time by pressing .

S9 Essentials

When S9 Essentials is enabled, the patient can simply start and stop therapy, access mask fit and adjust ramp, humidification and Climate Control.

Viewing the treatment screens

Depending on how the system has been configured, you will see one of the following example screens (shown in ST mode below) when the device is running:



- ✓ H5i humidifier



- ✓ H5i humidifier
- ✓ ClimateLine/ClimateLine^{MAX} heated air tube
- ✓ Climate Control – Auto



- ✓ H5i humidifier
- ✓ ClimateLine/ClimateLine^{MAX} heated air tube
- ✓ Climate Control – Manual



- ✓ Standard VPAP without optional accessories



- ✓ Oximetry data via the oximeter adapter

In S and ST modes, the fixed lines on the pressure bar indicate the expiratory and inspiratory pressures. In CPAP mode, only a set pressure is shown. While the treatment is ramping (indicated by an orange ramp icon below the pressure bar), the pressure values appear in orange. When a set pressure is reached these values are displayed in white.

To toggle between treatment screens 1 and 2, press  from your HOME screen.



- ✓ Treatment with device trigger (Timed) and cycle (Timed, Ti Max or Ti Min) breath indicators



- ✓ Treatment with spontaneous trigger and cycled breaths

Treatment screen parameters

Parameter	Modes				Description
	CPAP	S	ST	T	
CPAP	✓				Fixed treatment pressure.
S / ST / T		✓	✓	✓	Set (EPAP and IPAP) pressures.
Ramp	✓	✓	✓	✓	Orange icon shows that device is ramping up.
Oxygen saturation (SpO_2)*	✓	✓	✓	✓	Measure of the saturation of blood haemoglobin with oxygen, expressed as a percentage (sampled every second).
Leak	✓	✓	✓	✓	Estimate of the total rate of air escaping due to mouth and unintentional mask leaks, expressed in L/min (5-breath moving average).
Minute Ventilation (MV)	✓	✓	✓	✓	Volume of air breathed in, or out within any 60-second period, expressed in L/min (5-breath moving average).
Pulse*	✓	✓	✓	✓	Number of heart beats in a 60-second time frame (sampled every second).
Respiratory rate (RR)	✓	✓	✓	✓	Frequency of breathing, expressed as the number of breaths per minute (5-breath moving average).
Tidal volume (Vt)	✓	✓	✓	✓	Volume of air inspired or expired in one respiratory cycle (breath), expressed in mL (5-breath moving average).
Pressure support (PS)		✓	✓	✓	Difference between IPAP and EPAP.
Ti	✓	✓	✓	✓	Duration of inspiration (ie, the respiratory flow into the lungs), expressed in seconds (5-breath moving average).
I:E	✓	✓	✓	✓	Inspiration to expiration ratio measured by the device (5-breath moving average).
Ti Max		✓	✓	✓	Maximum inspiration time in seconds
Ti Min		✓	✓	✓	Minimum inspiration time in seconds.
% Spontaneous Triggering or Cycling (%Spont Trig or %Spont Cyc)		✓	✓		Percentage of breaths that are spontaneously triggered or cycled (average of the last 20 breaths).
Trigger/Cycle indicators (Timed, Ti Max or Ti Min)		✓	✓		Indicates a patient or device triggered/cycled breath. In ST mode, Timed is left blank if it is a spontaneous breath.

* Only available via the oximeter adapter.

Setup menu

The Setup menu consists of:

- **Patient Setup menu**—allows the patient to optimise comfort settings as well as make changes to the mask or tube type.
- **Clinical Setup menu**—allows you to set all parameters pertaining to the patient's therapy.

Patient Setup menu

Only settings relevant to the patient are displayed in the Patient Setup menu. Depending on how the device has been customised via the Clinical Setup menu, the following screens can be viewed:



Tube—only displayed if ClimateLine/ClimateLine^{MAX} is not connected. If ClimateLine/ClimateLine^{MAX} is attached, no setting is required.

Climate Ctrl—only displayed if ClimateLine/ClimateLine^{MAX} is connected and also set to PATIENT in the Clinical Setup menu.

Mask—always available.

Mask Fit—always available.

Leak Alert—only displayed if set to PATIENT in the Clinical Setup menu.

SmartStart—only displayed if set to PATIENT in the Clinical Setup menu.

+ Clinical Setup menu

To access the Clinical Setup menu, press and hold the Setup button and push dial for three seconds. There are four screens available from the Clinical Setup menu as shown in ST mode below:



Settings

Displays parameters directly affecting the patient's therapy.

Note: Clinical menus are identified by the yellow open lock shown in the top right corner. Where further options exist on a screen, the blue scroll bar down the right of the screen indicates your position within these options.



Options

Displays parameters affecting the patient's comfort, therapy feedback and compliance reporting.



Reminders

Displays parameters for accessories requiring replacement.



Configuration

Displays general device setting and resetting options.

Clinical setup menu parameters

Parameter	Modes				Default	Range	Description
	CPAP	S	ST	T			
Settings							
Mode	✓	✓	✓	✓	ST/S	CPAP / S / ST / T	Sets the therapy mode available on the device.
Set pressure	✓				8 cm H_2O	4–20 cm H_2O, 0.2 cm H_2O increments	Sets the fixed treatment pressure.
IPAP		✓	✓	✓	10 cm H_2O	4–25 cm H_2O, 0.2 cm H_2O increments	Sets the pressure which will be delivered to the patient when the device is triggered into inspiration.
EPAP		✓	✓	✓	4 cm H_2O	2–[IPAP] cm H_2O, 0.2 cm H_2O increments	Sets the pressure which will be delivered to the patient when the device is cycled into expiration.
Backup rate*		✓			Off [10]†	Off / 10	Sets the breaths per minute (10 BPM fixed backup rate).
Respiratory Rate**			✓	✓	10 [12]† BPM	5–50 BPM	Sets the breaths per minute (BPM) or 'backup' rate.
Ti Max		✓	✓		2.0 [1.5]† sec	0.3–4.0 sec, 0.1 sec increments	Sets the maximum limit on the time the device spends in IPAP.
Ti Min		✓	✓		0.3 [0.5]‡ sec	0.1–[Ti Max] sec, 0.1 sec increments	Sets the minimum limit on the time the device spends in IPAP.
Ti**				✓	2.0 [1.5]† sec	0.3–4.0 sec, 0.1 sec increments	Sets the duration of inspiration in timed breath.
Rise Time		✓	✓	✓	150 [300]‡ ms	Min / 150–900 ms, 50 ms increments	The Rise Time scale can be approximately read as 'milliseconds' (eg, 200 is approximately 200 ms).
Trigger		✓	✓		Med	Very Low / Low / Med / High / Very High	Sets the level of inspiratory flow above which the device changes from EPAP to IPAP.
Cycle		✓	✓		Med	Very Low / Low / Med / High / Very High	Sets the level of inspiratory flow below which the device changes from IPAP to EPAP.
Max Ramp VPAP S VPAP ST	✓	✓	✓	✓	 0 [30]† [45]‡ 30 [Off]† [45]‡	Off–45 minutes, 5-min increments	Limits the ramp time the patient may select.
Start pressure	✓				4 cm H_2O	4–Set pressure, 0.2 cm H_2O increments	Sets the pressure at the start of ramp, up to fixed treatment pressure
Start EPAP		✓	✓	✓	4 cm H_2O	2–Min pressure, 0.2 cm H_2O increments	Sets the pressure at the start of ramp, up to minimum treatment pressure.

* Available in VPAP S only. ** Available in VPAP ST only.
† [France only]. ‡ [Germany only].

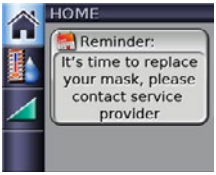
Parameter	Modes				Default	Range	Description
	CPAP	S	ST	T			
Circuit							
Mask type	✓	✓	✓	✓	Full Face	Full Face / Nasal / Pillows / Nasal Ultra / Pediatric	Selects the type of mask used by the patient.
Tube type	✓	✓	✓	✓	SlimLine	SlimLine / Standard / 3m	Shows the type of air tubing used by the patient.
AB filter	✓	✓	✓	✓	No	No / Yes	Enables or disables antibacterial filter.
Options							
Climate Control	✓	✓	✓	✓	Auto	Auto / Manual / Patient	Sets the type of Climate Control.
Sleep quality	✓	✓	✓	✓	Usage	On / Usage	Sets Sleep Quality to Usage or On.
SmartStart	✓	✓	✓	✓	Off [On]‡	On / Off / Patient	Enables or disables the SmartStart feature.
Access	✓	✓	✓	✓	Full	Full / Limited	Enables or disables S9 Essentials—If set to Limited, the Info and Setup menu buttons are disabled. This means that the patient can simply start or stop therapy and adjust ramp, humidification or Climate Control. Combined button presses remain enabled.
Leak Alert	✓	✓	✓	✓	Off	Off / On	Enables or disables the Leak Alert feature; when enabled, leaks >40L/min (0.7 L/s) for >20 sec result in an audible alert and a high leak message on the LCD. Also functions as a mask-off alert.
Date	✓	✓	✓	✓		DD Mmm YYYY	Sets the current date or time. If you set a new date or time that occurs in the past then an 'Invalid date/time, data exists for this period' message is displayed. Before this change can be made, erase the compliance data – available under the Configuration menu.
Time	✓	✓	✓	✓		00:00 (24 hr)	

‡ [Germany only].

Parameter	Modes				Default	Range	Description
	CPAP	S	ST	T			
Reminders							
Mask	✓	✓	✓	✓	6 mths	Seven-day increments (starting from the current set date) with a recurrence period of one to 24 months.	A timed reminder to remind a patient when they need to replace their mask.
Water tub	✓	✓	✓	✓	6 mths		A timed reminder to remind a patient when they need to replace their water tub.
Tube	✓	✓	✓	✓	6 mths		A timed reminder to remind a patient when they need to replace their tubing.
Filter	✓	✓	✓	✓	6 mths		A timed reminder to remind a patient when to replace the air filter.
SD card	✓	✓	✓	✓	Off		A timed reminder to remind a patient that they need to remove their SD card and return it to you, enabling you to establish compliance.
Service	✓	✓	✓	✓	Off		A timed reminder to remind a patient when to return the device for service.
Customised messages (Custom 1, Custom 2)	✓	✓	✓	✓	Off		Customised reminders, eg, to return equipment or to phone a particular person or number. Custom reminder text can be up to 32 characters long, via a PC application. See your PC application manual for more information.
Configuration							
Language	✓	✓	✓	✓	English	English / Français / Español / Português / Deutsch / Svenska / Norsk / Dansk / Suomi / Polski / Türkçe / Русский / 简体中文 / 繁體中文	Sets the display language. ***Note:*** *Not all languages are available in all regions.*
Restore factory defaults	✓	✓	✓	✓		Yes / No	Resets machine default settings (except for language, date and time).
Erase data	✓	✓	✓	✓		Yes / No	Allows you to erase all data stored in the unit and SD card (except for device run hours). Settings, date and time are not affected.
Pressure units	✓	✓	✓	✓	cm H_2O	cm H_2O / hPa	Sets pressure units
Temperature units	✓	✓	✓	✓	°C	°C / °F	Sets temperature units

Reminder menu

You can access reminders from the Clinical Menu > Options. From the REMINDERS screen, scroll down to the submenus to set a number of different types of messages.



You can use the Reminder menu to alert a patient to specific events, such as when to replace their mask (shown on the left) or when to insert an SD card. When a reminder is due, a message is displayed on the LCD and remains while the device is not delivering therapy. The backlight on the LCD flashes when a message is displayed.

If more than one reminder for a patient is scheduled for the same date, all scheduled reminders will be displayed.

Patients can clear each message by pressing any key (except the Start/Stop button).

For a list of each of the reminders available and their default settings, see the table on the previous page.

Info menu

The Info menu consists of:

- **Standard Info menu**—provides patients with information about compliance, therapy and settings.
- **Advanced Info menu**—provides you with additional therapy settings and compliance information.

Standard Info menu

From the Standard Info menu, patients can check their sleep quality, sleep report and service information.



Sleep Quality—On

When Sleep Quality is set to On (via Setup > Clinical Setup > Options), data on previous usage (up to 365 days of data), mask-fit and AHI can be viewed.



Sleep Quality—Usage

When Sleep Quality is set to Usage, only the data on previous usage is displayed.



Sleep Report

For Sleep Report, only the period can be changed—other values are for display only.



Service

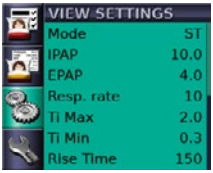
For Service information, the device run hours and software identifications are displayed

+ Advanced Info menu

To access the Advanced Info menu, press and hold the Info and Setup buttons for three seconds. This menu provides additional settings and sleep report information. Usage, Mask Fit and AHI are always displayed even when Sleep Quality is set to Usage.







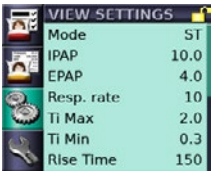


Clinical Info menu

Accessed from the Clinical Setup menu, the Clinical Info menu provides the same screens as shown on the Advanced Info menu on the previous page but with lighter green background and with the unlock symbol.









Info menu parameters

Parameter	Description
Sleep Quality	Displays the following information on last night's usage, mask fit and AHI data.
Period	Time period displayed as Last night (last session).
Usage	Number of hours the device has been used during the last session.
Mask Fit	Indicates 'Good' if the 70th percentile leak is less than 24 L/min.
AHI	Apnoeas and hypopnoeas measured per hour for one day. An apnoea is when the respiratory flow decreases by more than 75% for at least 10 sec. A hypopnoea is when the respiratory flow decreases to 50% for at least 10 sec. The Apnoea Index (AI) and Apnoea Hypopnoea Index (AHI) are calculated by dividing the total number of events that occurred by the total mask-on therapy period in hours.
Sleep Report	Displays additional therapy settings and compliance information (eg, Days used, Used Hrs).
Period	Sets time periods to a day, week, month (1, 3 or 6) and year to display available data. This period is the only parameter you can change in the Sleep Report—other parameters are for display only.
Days Used	Number of days the device has been used during the selected period or since the last compliance data was reset.
Days>4hrs	Number of days the device has been used for more than 4 hours during the selected period or since the last compliance data was reset.

Parameter	Description
Avg. usage	Average number of hours per day the device has been used during the selected period.
Used Hrs	Number of hours the device has been used during the selected period or since the last compliance data reset.
Insp. pressure	Average inpiratory pressure during the selected period (95th percentile for each day for periods >1 day is the average of the 95th percentiles).
Exp. pressure	Average expiratory pressure during the selected period (95th percentile for each day for periods >1 day is the average of the 95th percentiles).
Leak	Average leak during the selected period.
Vt	Average tidal volume during the selected period (median value for a 1-day period).
RR	Average respiratory rate during the selected period (median value for a 1-day period).
MV	Average minute ventilation during the selected period (median value for a 1-day period).
%Spont T or %Spont C	Percentage of breaths that are spontaneously triggered or cycled, measured from the last 20 breaths.
AHI	Apnoea-Hypopnoea Index—average AHI during the selected period. AHI and AI are calculated for times of low leak only.
Total AI	Apnoea Index—average total AI during the selected period.
View settings	Displays parameter settings depending on therapy mode.
	Note: *This screen provides the same options as shown on the Clinical Info menu.*
Service	Displays the device run hours, software version and other component versions.
Run hours	Displays the total number of hours the device has been used including warm-up and cool-down times for the humidifier. It is not affected by the Period selected. This is the only data item that is not reset when data is erased.
SW	Displays the current software version.
BID	Displays the boot loader ID.
VID	Displays the variant ID.
RID	Displays the regional variant ID.
HID	Displays the humidifier software ID.

Managing Climate Control

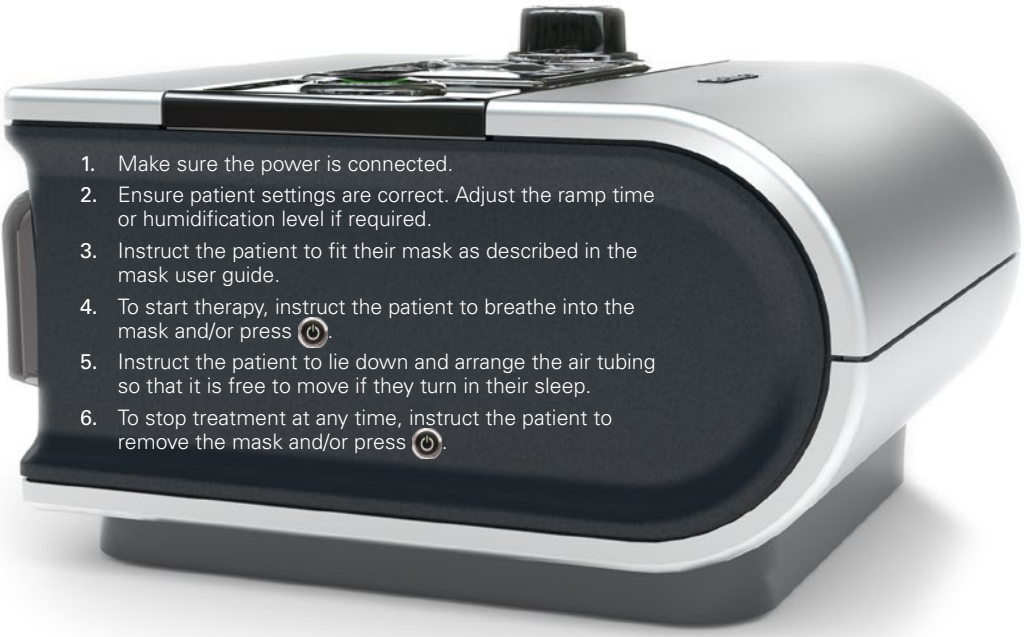
Designed to be ideal for most patients, Climate Control Auto enables the automatic delivery of a constant value of absolute humidity while protecting against rainout.

To allow for increased flexibility, Climate Control can be turned to Manual in either the Patient Setup (when enabled) or the Clinical Setup menus. Setting Climate Control to Manual disables the automatic control of humidity and allows the patient to set humidity and temperature levels independently. However, rainout protection is not provided when Climate Control is set to Manual.

Mode	Humidity		Temperature	
	Setting range	Default settings	Setting range	Default settings
Climate Control – Auto 	**Climate Control**			
	Constant absolute humidity (depending on temperature setting)	–	Off*, 16°C–30°C	27°C
Climate Control – Manual 	**Humidity level**		**Heated tube**	
	Off–6.0 (0.5 increments)	3	Off, 16°C–30°C	27°C

* When the temperature setting is set to Off the tube will not heat the air, nor will the humidifier heat the water to add humidity to the air.

Delivering therapy



If you enable SmartStart, the patient's device will start automatically when the patient breathes into the mask and stop automatically when they remove their mask.

Once therapy has started a treatment screen is displayed.

In order to assist the heater plate in cooling, the VPAP device will continue to blow air for up to an hour after treatment has stopped. However, you can unplug the device from the power outlet at any time and allow the heater plate to cool without air flow, or press to enable Power Save mode.

Note: *If power is interrupted during treatment, the device automatically restarts therapy when power is restored.*

Adding supplemental oxygen

The VPAP device is designed to be compatible with up to 15 L/min of supplemental oxygen.

At a fixed rate of supplemental oxygen flow, the inhaled oxygen concentration will vary, depending on the pressure settings, patient breathing pattern, mask selection, and the leak rate.

Notes:

- *Adding oxygen may affect the delivered pressure, and the accuracy of the displayed leak and minute ventilation.*
- *Before adding oxygen, familiarise yourself and your patient with the specific warnings relating to the use of supplemental oxygen. These can be found at the end of this guide.*

Data management

The SD card may be used to monitor patient usage as well as treatment pressure, mask leak, and incidence of apnoeas and hypopnoeas. To assess the patient's progress, data for the last session may be compared to values for the last week, the last month, the last three months, the last six months, and the last year. The device stores usage and summary data for up to 365 sessions.

SD card

The SD card allows VPAP devices to capture data. The VPAP Series comes with the SD card already inserted and ready to be used.

Compliance data is also stored on the device, so if the card is lost, the data is not. You can also create new treatment settings and transfer them to the patient's device via the SD card.

VPAP device settings are written to the SD card. This allows a ResMed PC application to display actual device settings from the SD card instead of the default values.



Removing the card

Before removing the card, instruct the patient to disconnect the VPAP device from the power outlet.

To remove the card, instruct the patient to:



1. Push in the SD card to release it.
2. Remove the card.
3. Insert the card into the protective folder.
4. Send the protective folder back to you as instructed.

Inserting the card

1. Remove the card from the protective folder.
2. Push the card into the VPAP device until it clicks.
3. The following message is briefly displayed: **Reading SD card**

Notes:

- *For more information on removing and inserting the card refer to the S9 SD Card Protective Folder provided with the device.*
- *Ask the patient to retain the S9 SD Card Protective Folder for future use.*

Analysing the SD card data

To analyse the data, use a ResMed PC application to transfer data and settings between an S9 or an SD card and your personal computer. Refer to your PC application guide for more information about analysing the information on returned SD cards.

Data storage

The amount of data stored on the SD card varies compared to the data stored on the device.

Type of data	VPAP device	SD card	Sampling rate
Compliance and therapy summary and statistic data*	365 nights	365 nights	
Detailed data	–	30 nights	
Apnoea or hypopnoea events (sec)			Aperiodic
Flow limitation (flat to round)			1/2 Hz
Leak (L/min)			1/2 Hz
Minute ventilation (L/min)			1/2 Hz
Pressure (cm H_2O)			1/2 Hz
Pulse rate (beats/min)**			1 Hz
Snore (quiet to loud)			1/2 Hz
Oxygen saturation (SpO_2) (%)**			1 Hz
High resolution flow and pressure data	–	7 nights	25 Hz

* The pressure and leak samples used to calculate the statistics data are averages over a one minute period.

** Information only available via the oximeter adapter.

Data transmission adapters

The following data transmission adapters are designed for use with VPAP devices.

Device	Method	Description	Type of data transfered
	Oximeter adapter	Enables collection of oximetry data from an oximeter for storing data on the SD card inserted into the device.	Oximetry data (oxygen saturation and pulse rate)

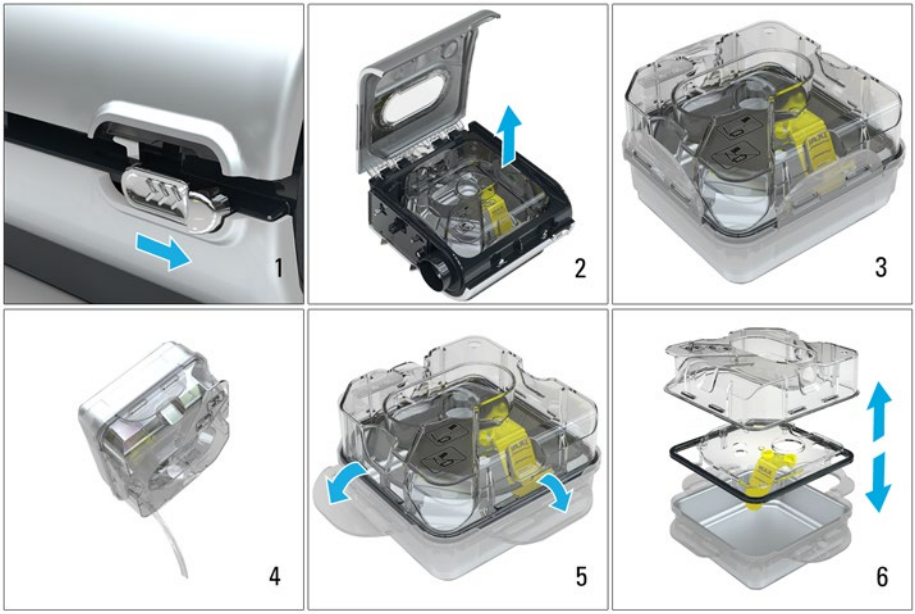
Note: *For more information on setting up your S9 adapter refer to the relevant S9 adapter user guide.*

Cleaning and maintenance

You should regularly clean and maintain your device as described in this section.

Disassembling the H5i

1. Slide the latch.
2. Lift open the flip lid.
3. Remove the water tub.
4. Discard any excess water from the water tub.
5. Unclip all four side latches.
6. Pull apart the tub lid, plate and base.



Daily

1. Remove the air tubing by pulling on the finger grips on the cuff. Hang the air tubing in a clean, dry place until next use.
2. Wash the disassembled tub lid, plate and base in warm water using a mild detergent.
3. Rinse thoroughly in clean water and allow them to dry away from direct sunlight.

Notes:

- *The disassembled tub lid, plate and base may also be washed in a dishwasher on the delicate or glassware cycle (top shelf only).*
- *Do not hang the air tubing in direct sunlight as it may harden over time and eventually crack.*
- *Do not wash the air tubing in a washing machine or dishwasher.*

Monthly

1. Wipe the exterior of the VPAP and H5i with a damp cloth and mild detergent.
2. Check the air filter for holes and blockage by dirt or dust. Replace the air filter if necessary.
3. Peel the flip lid seal from the flip lid and wash it in warm water using a mild detergent.

Reassembling the H5i

1. Place the plate back onto the base ensuring that the maximum water level mark faces up.
2. Place the tub lid back onto the plate/base ensuring that the centre holes are aligned.
3. Clip all four side latches.
4. Fill the water tub and return the water tub to the H5i.
5. Close the flip lid ensuring that it clicks into place.



Maintenance checklist

- ✓ Inspect the H5i water tub and flip lid seal for wear and deterioration.
- ✓ Replace the water tub if any component is leaking or has become cracked, cloudy or pitted.
- ✓ Replace the flip lid seal if cracked or torn.
- ✓ Clean white powder deposits in the water tub by using a solution of one part household vinegar to 10 parts water.
- ✓ Inspect the maximum water level mark. If cleaning is required, remove by pinching and pushing out the locks from the plate. Wash in warm water using a mild detergent.

Reprocessing the H5i between patients

The H5i should be reprocessed when used between patients. Cleaning and disinfection instructions are available from the ResMed website, www.resmed.com under **Products** and **Service & Support**. If you do not have internet access, please contact your ResMed representative.

Replacing the air filter

Replace the air filter every six months (or more often if necessary).

1. Remove the air filter cover from the back of the VPAP device.
2. Remove and discard the old filter.
3. Insert a new ResMed air filter ensuring that it is sitting flat in the air filter cover.
4. Replace the air filter cover.

Notes:

- *Ensure the air filter and air filter cover are fitted at all times.*
- *Do not wash the air filter. The air filter is not washable or reusable.*



The following filters are available for use with VPAP devices:

Filter	Efficiency
Standard (ASMB 160)	88% at 7 micron
Hypo-allergenic (Air Safety Electret100 – electrostatic filter)	89.8% at 0.5 micron, bacterial efficiency of 99.54%.

Antibacterial filters

Antibacterial filters increase resistance in the air circuit and may affect accuracy of displayed and delivered pressure, particularly at high flows. ResMed recommends using a filter with a low impedance (eg, less than 2 cm H_2O at 60 L/min).

Technical specifications

General technical specifications	
Power supply	90W power supply unit Input range: 100–240V; 50–60Hz; 115V, 400Hz nominal for aircraft use Typical power consumption: 70W (80VA) Maximum power consumption: 110W (120VA)
	30W power supply unit Input range: 100–240V; 50–60Hz; 115V, 400Hz nominal for aircraft use Typical power consumption: 20W (40VA) Maximum power consumption: 36W (75VA)
	90W DC/DC converter Nominal inputs: 12V, 24V Typical power consumption: 70W Maximum power consumption: 110W
Environmental conditions	**Operating temperature:** +5ºC to +35ºC ***Note:*** *The air flow for breathing produced by this therapy device can be higher than the temperature of the room. Under extreme ambient temperature conditions (40ºC) the device remains safe.* **Operating humidity:**10–95% non-condensing **Operating altitude:** Sea level to 2,591 m **Storage and transport temperature:** -20ºC to +60ºC **Storage and transport humidity:** 10–95% non-condensing
Electromagnetic compatibility	Product complies with all applicable electromagnetic compatibility requirements (EMC) according to IEC60601-1-2:2007, for residential, commercial, and light industry environments. It is recommended that mobile communication devices are kept at least 1 m away from the device. Information regarding the electromagnetic emissions and immunity of these ResMed devices can be found on www.resmed.com, on the Products page under Service and Support. Click on the PDF file for your language.
Aircraft use	ResMed confirms that these VPAP devices meet the Federal Aviation Administration (FAA) requirements (RTCA/DO-160, section 21, category M) for all phases of air travel.
IEC 60601-1 classification	Class II (double insulation), Type BF
Measuring and display devices	**Pressure sensor:** Internally located at device outlet, analog gauge pressure type, -5 to +45 cm H_2O **Flow sensor:** Internally located at device inlet, digital mass flow type, -70 to +200 L/min

VPAP ST and VPAP S technical specifications		
Pressure and flow state	Operating pressure range (measured at the mask): 4–20 cm H_2O (CPAP); 2–25 cm H_2O (VPAP) Maximum single fault steady state pressure: 30 cm H_2O - if pressure exceeded for > 6 sec; 40 cm H_2O - if pressure exceeded for >1 sec	
Mode reading	CPAP mode Set pressure: 4 to 20 cm H_2O ST and T modes IPAP: 4 to 25 cm H_2O; EPAP: 2 to 25 cm H_2O	
Sound: DECLARED DUAL-NUMBER NOISE EMISSION VALUES in accordance with ISO 4871:1996	**Sound pressure level (CPAP mode)**	
	with SlimLine tube:	26 dBA with uncertainty of 2 dBA as measured according to EN ISO 17510-1:2009
	with Standard tube:	27 dBA with uncertainty of 2 dBA as measured according to EN ISO 17510-1:2009
	with either SlimLine tube or Standard tube and H5i:	28 dBA with uncertainty of 2 dBA as measured according to EN ISO 17510-1:2009
	Sound power level (CPAP mode)	
	with SlimLine tube:	34 dBA with uncertainty of 2 dBA as measured according to EN ISO 17510-1:2009
	with Standard tube:	35 dBA with uncertainty of 2 dBA as measured according to EN ISO 17510-1:2009
	with either SlimLine tube or Standard tube and H5i:	36 dBA with uncertainty of 2 dBA as measured according to EN ISO 17510-1:2009
Physical	Dimensions (L x W x H): 153 mm x 140 mm x 86 mm Weight: 835 g Housing construction: Flame retardant engineering thermoplastic Air outlet: 22 mm conical air outlet (complies with ISO 5356-1:2004)	
Air filter	Standard: Polyester non-woven fiber Hypoallergenic: Acrylic and polypropylene fibers in a polypropylene carrier	
Supplemental oxygen	Recommended maximum supplemental oxygen: 15 L/min	

H5i technical specifications	
Temperature	Maximum heater plate temperature: 65°C Temperature cut-out: 74°C Maximum gas temperature at mask: ≤ 41°C
Physical	Dimensions (L x W x H): 153 mm x 145 mm x 86 mm Weight (standard water tub): Docking station and unfilled water tub 690 g Weight (cleanable water tub): Docking station and unfilled water tub 790 g Water capacity: To maximum fill line 380 mL
Material	Docking station: Flame retardant engineering thermoplastic, aluminium Cleanable water tub: Injection molded plastic, stainless steel and silicone seal Standard water tub: Injection molded plastic, aluminium and elastomer seal

Air tubing technical specifications			
Air tubing	**Length**	**Inner diameter**	**Material**
ClimateLine	2 m	15 mm	Flexible plastic and electrical components
ClimateLine^{MAX}	1.9 m	19 mm	Flexible plastic and electrical components
SlimLine	1.8 m	15 mm	Flexible plastic
Standard	2 m	19 mm	Flexible plastic
3m	3 m	19 mm	Flexible plastic
Heated tubing temperature cut-out: ≤ 41°C			

Notes:

- *The manufacturer reserves the right to change these specifications without notice.*
- *The temperature and relative humidity settings displayed for Climate Control are not measured values.*
- *Check the user guide before using the SlimLine air tubing with other devices.*
- *The electrical connector end of the heated air tubing is only compatible with the H5i air outlet and should not be fitted to the device or the mask.*

Humidifier performance

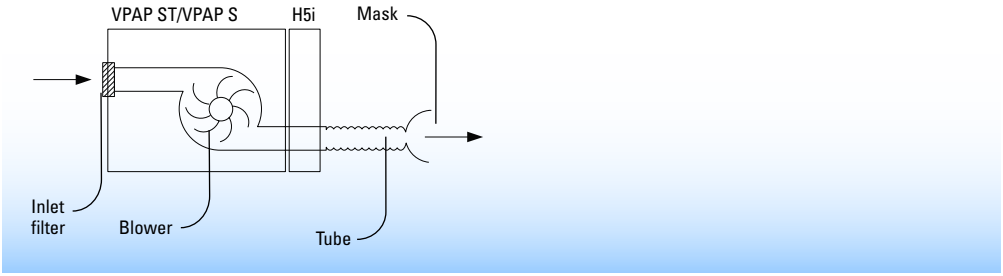
The following settings have been tested at 22°C ambient temperature:

CPAP mask pressure cm H_2O	RH output %		Nominal system output AH[1], BTPS[2]	
	Setting 3	Setting 6	Setting 3	Setting 6
3	90	100	10	18
10	95	100	11.5	21
20	95	100	11	18
25	100	100	12	13.5

[1] AH - Absolute Humidity in mg/L.

[2] BTPS - Body Temperature Pressure Saturated.

Pneumatic flow path



Flow (maximum) at set pressures

The following are measured at the end of the specified tubing:

Pressure cm H_2O	VPAP and Standard air tube L/min	VPAP, H5i and Standard air tube, L/min	VPAP and SlimLine air tube, L/min	VPAP, H5i and ClimateLine heated air tube, L/min
4	200	170	195	170
8	200	170	190	170
12	200	170	184	170
16	200	170	175	170
20	190	170	168	161
25	180	161	144	125

Displayed values

Value	Range	Display resolution
Pressure sensor at air outlet		
Mask pressure	2–25 cm H_2O	0.1 cm H_2O
Flow derived values		
Leak	0–200 L/min	1 L/min
Tidal volume	0–4000 mL	1 mL
Respiratory rate	0–50 BPM	1 BPM
Minute ventilation	0–30 L/min	0.1 L/min
Ti	0.1–4.0 sec	0.1 sec
I:E ratio	1:50–2:1	0.1
Value	**Accuracy[1]**	
Pressure measurement[1]		
Mask pressure	±0.5 cm H_2O (+ 4% of measured value)	
Flow measurements[1]		
Leak[2]	±12 L/min or 20% of reading, whichever is greater, at 0 to 60 L/min	
Tidal volume[2,3]	±20%	
Respiratory rate[2,3]	±1.0 BPM	
Minute ventilation[2,3]	±20%	

[1] Results are expressed at ATPD (Ambient Temperature and Pressure, Dry)

[2] Accuracy may be reduced by the presence of leaks, supplemental oxygen, tidal volumes <100 mL or minute ventilation <3 L/min.

[3] Measurement accuracy verified as per EN ISO 10651-6:2009 for Home Care Ventilatory Support Devices (Figure 101 and Table 101) using nominal ResMed mask vent flows.

Pressure accuracy

Maximum static pressure variation at 10 cm H_2O according to EN ISO 17510-1:2009:		
	Standard tube	SlimLine tube
Without humidifier	9.89 cm H_2O to 9.97 cm H_2O	9.76 cm H_2O to 9.87 cm H_2O
With H5i humidifier	9.82 cm H_2O to 9.98 cm H_2O	9.78 cm H_2O to 9.88 cm H_2O

Maximum dynamic pressure variation according to EN ISO 17510-1:2009:			
Pressure (cm H_2O)	10 BPM	15 BPM	20 BPM
	VPAP and Standard tube without H5i / VPAP and Standard tube with H5i		
4	0.18 / 0.18	0.30 / 0.30	0.51 / 0.51
8	0.21 / 0.20	0.26 / 0.24	0.38 / 0.36
12	0.21 / 0.20	0.26 / 0.23	0.34 / 0.31
16	0.22 / 0.21	0.27 / 0.26	0.36 / 0.33
20	0.23 / 0.22	0.26 / 0.28	0.38 / 0.35
25	0.30 / 0.31	0.54 / 0.50	0.74 / 0.71
Pressure (cm H_2O)	10 BPM	15 BPM	20 BPM
	VPAP and SlimLine tube without H5i / VPAP and SlimLine tube with H5i		
4	0.22 / 0.20	0.28 / 0.29	0.47 / 0.53
8	0.23 / 0.19	0.32 / 0.29	0.41 / 0.42
12	0.22 / 0.21	0.35 / 0.29	0.41 / 0.45
16	0.22 / 0.23	0.41 / 0.33	0.44 / 0.50
20	0.24 / 0.27	0.37 / 0.34	0.48 / 0.50
25	0.31 / 0.31	0.50 / 0.54	0.78 / 0.84

Warnings and Cautions

⚠ WARNINGS

- Read the entire manual before using the device.
- Use the device only as directed by your physician or healthcare provider.
- Use the device only for the intended use as described in this manual. Advice contained in this manual should not supersede instructions given by the prescribing physician.
- If you notice any unexplained changes in the performance of the device, if it is making unusual or harsh sounds, if the device or the power supply are dropped or mishandled, if water is spilled into the enclosure, or if the enclosure is broken, discontinue use and contact your ResMed Service Center.
- Beware of electrocution. Do not immerse the device, humidifier, power supply or power cord in water. In the event of a spill, disconnect the device from the power supply and let the parts dry. Always unplug the device before cleaning and make sure that all parts are dry before plugging in the device.
- Explosion hazard—do not use in the vicinity of flammable anesthetics.
- Make sure the power cord and plug are in good condition and the equipment is not damaged.
- Keep the power cord away from hot surfaces.
- The device should only be used with masks (and connectors[1]) recommended by ResMed, or by a physician or respiratory therapist. A mask should not be used unless the device is turned on. Once the mask is fitted, ensure that the device is blowing air. The vent hole or holes associated with the mask should never be blocked.
  Explanation: The device is intended to be used with special masks (or connectors) which have vent holes to allow continuous flow of air out of the mask. When the device is turned on and functioning properly, new air from the device flushes the exhaled air out through the mask vent holes. However, when the device is not operating, insufficient fresh air will be provided through the mask, and the exhaled air may be rebreathed. Rebreathing of exhaled air for longer than several minutes can, in some circumstances, lead to suffocation. This applies to most models of CPAP or bilevel devices.
- Oxygen supports combustion. Oxygen must not be used while smoking or in the presence of an open flame.
- Always ensure that the device is turned on and airflow generated before the oxygen supply is turned on. Always turn the oxygen supply off before the device is turned off, so that unused oxygen does not accumulate within the device enclosure and create a risk of fire.
- Do not operate the H5i if it is not working properly or if any part of the device or H5i has been dropped or damaged.
- Do not leave long lengths of air tubing around the top of the patient's bed. It could twist around the patient's head or neck while they are sleeping.
- Do not use electrically conductive or antistatic air tubings.
- Do not use the air tubing if there are any visible signs of damage.
- Only ResMed air tubing and accessories should be used with the device. A different type of air tubing or accessory may alter the pressure you actually receive, reducing the effectiveness of the treatment.
- Only use the ResMed 90W or 30W power supply unit. Use the 90W power supply unit to power the system comprising the device, H5i, air tubing, DC/DC converter and battery pack. The 30W power supply unit is designed to power the device only and recommended for traveling.
- Only ResMed products are designed to be connected to the module connector port. Connecting other devices could damage the device.
- Blocking the air tubing and/or air inlet of the device while in operation could lead to overheating of the device.

1 Ports may be incorporated into the mask or in connectors that are near the mask.

⚠ CAUTIONS

- Do not open the device enclosure. There are no user serviceable parts inside. Repairs and servicing should only be performed by an authorised ResMed service agent.
- Do not use bleach, chlorine, alcohol, or aromatic-based solutions, moisturising or antibacterial soaps or scented oils to clean the device, humidifier or air tubing. These solutions may cause damage and reduce the life of these products.
- Incorrect system setup may result in incorrect mask pressure reading. Ensure the system is correctly set up.
- Be careful not to place the device where it can be bumped or where someone is likely to trip over the power cord.
- Make sure the area around the device is dry and clean and clear of bedding, clothes or other objects that could block the air inlet or cover the power supply unit.
- Ensure that the device is protected against water if used outdoors. Enclose the device in the S9 travel bag for transport.
- The H5i should only be used with tubing or accessories recommended by ResMed. Connection of other delivery tubes or accessories could result in injury, or damage to the device.
- Do not open the H5i enclosure. There are no user serviceable parts inside. Repairs and servicing should only be performed by an authorised ResMed service agent.
- Do not overfill the water tub as water may enter the device and air tubing.
- Do not use any additives (eg, scented oils and perfumes). These may reduce the humidification output of the H5i and/or cause deterioration of the water tub materials.
- Take care when handling the H5i as the water/water tub may be hot. Allow 10 minutes for the heater plate and any excess water to cool.
- The H5i should only be connected or disconnected when the water tub is empty.
- Make sure that the water tub is empty before transporting the H5i.
- Do not operate the H5i on an aircraft as water may enter the device and air tubing during turbulence.
- Always place the H5i on a level surface below the level of the user to prevent the mask and tubing from filling with water.
- If liquids are inadvertently spilled into or on the H5i, unplug the device from the power outlet. Disconnect the H5i from the device and allow it to drain and dry before re-using.

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S9 VPAP ST / S9 VPAP S
H5i
CLINICAL
ROW ENG



Manufacturer: ResMed Pty Ltd 1 Elizabeth Macarthur Drive Bella Vista NSW 2153 Australia.

See www.resmed.com for other ResMed locations worldwide.
For patent information, see www.resmed.com/ip.
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